ABSTRACT OF THE DISCLOSURE

Disclosed is an inductively coupled plasma processing apparatus which has a very-high-frequency parallel antenna producing inductively-coupled plasma for a large substrate. This plasma processing apparatus includes a very high frequency power source in order to generate the high dense plasma, and parallel-connected antenna units that receive the very high frequency power from the very high frequency source. The very high frequency power has a frequency of 20 MHz to 300 MHz. According to present invention, while the plasma density can be raised, the electron temperature can be lowered. Thus, when the dry etch process is conducted using CF_X, the CF_X/F ratio can be adjusted to have the low density of fluorine radical. And also, it is possible to have the high radical density of CF_2, CF_3 and the like. As a result, the proper radical ratio, which is relative to increase selection ratio, enhances the dry etch process excellently.